

Western Electric Co., Incorporated.
Engineering Dept.,
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METHOD OF OPERATION LINE CIRCUIT

Test And Plugging Up - In Connection With Jack Box At M.D.F. - Full Mechanical Power Driven System.

GENERAL DESCRIPTION

1. This circuit is used as a test and plugging up line circuit, in full mechanical offices. It is used to temporarily connect to the test desk, subscribers' lines which are in trouble.
2. When a subscriber's line is out of service due to line trouble, it is connected to the test and plugging up line by means of a test connecting cord, one end of which is inserted in the jack box associated with this circuit, the other end of which is placed between the protector blocks and the outside springs of the protector. The outside end of the line terminates on the tips, and the switchboard end of the line on the sleeve of the test connecting cord.
3. A line connected to this circuit lights the red lamp, if the 248-A key is in its normal position, as an indication to the testing operator that the line in trouble has been connected to the test and plugging up line and is ready for test. The green busy lamp also lights, when the plug of the test connecting cord is inserted in the jack at the jack box associated with this circuit, and remains lighted until the plug of the test connecting cord is removed from the jack.
4. When the plug of a test cord is inserted in the jack associated with the lighted red lamp, the lamp is extinguished. The plug of the test cord is removed from the jack after the necessary tests are made. The red lamp relights and is extinguished by the operation of the 248-A key. The red lamp relights with the key in the operated position when the trouble has been cleared, which provides, for a subscriber or trouble-man, means of signalling the tester.
5. On an incoming call the white lamp lights. The testing operator answers the call by inserting the plug of a talking cord in the jack associated with the lighted lamp, extinguishing it.
6. When the trouble has been cleared, the 248-A key is restored and the plug of the test connecting cord is removed from the jacks at the test box, restoring the circuit to normal.

DETAILED DESCRIPTION

OPERATION

7. A subscriber's line out of service due to a line trouble is connected to this circuit by means of the test connecting cord. The L-1 relay operates if there is a ground on the ring or a cross between on the tip and ring of the line, closing a circuit from ground on its armature and make contact, contacts

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of the 248-A key to battery through the red lamp, which lights. A circuit is also closed from ground through the contacts of the jack at the test box to battery through the winding of the BY relay, which operates, lighting the green lamp. The plug of a testing cord is inserted in the jack associated with the lighted red lamp, opening the circuit through the B97 relay, which releases, extinguishing the red lamp. After the necessary tests have been made the plug of the testing cord is withdrawn from the jack, thereby re-operating the B97 relay, and relighting the red lamp. The lamp is extinguished when the 248-A key is operated when the trouble has been cleared, the B97 relay releases, closing a circuit from ground on its armature and break contact, contacts of the 248-A to battery through the red lamp, which relights as an indication to the testing operator that the trouble has been cleared.

8. If ringing current is applied at the final multiple to the line connected to this circuit, as in the case of an incoming call, the B35 relay operates through its 475 ohm winding and locks to ground through its 525 ohm winding. The B35 relay operated, closes a circuit from battery on its armature and make contact, through the white lamp to ground, lighting the lamp. The plug of a trunk cord is inserted in the jack associated with the lighted white lamp, opening the circuit through winding of the B35 relay, releasing the relay and extinguishing the white lamp. When the plugs of both cords are withdrawn from the jacks and the 248-A key restored, the circuit is restored to normal.

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CIRCUIT REQUIREMENTS

OPERATE

NON-OPERATE

RELEASE

B35 Test .0045 amp.
(L) Readj. .0042 amp.
Inner
winding
(525 ohms)

Test .0007 amp.
Readj. .0014 amp.

Outer Test .0066 amp.
winding
(475 ohms)

B97 Test .0078 amp.
(L-1) Readj. .004 amp.

Test .0024 amp.
Readj. .0026 amp.

E458 Test .0155 amp.
(BY) Readj. .011 amp.

Test .0008 amp.
Readj. .0015 amp.

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